

REMARKS

Favorable reconsideration and allowance of this application are requested.

1. Discussion of Amendments

By way of the amendment instructions above, the subject matter of claim 2 has been incorporated into claim 1. As such, claim 2 has been canceled as redundant. Further editorial revisions to improve the syntax of the claims have been presented.

The embedded preferences originally appearing in pending claim 3 have been deleted therefrom and now appear as new claims 13 and 14. The dependency of claim 5 has been changed so that antecedent basis is present with respect to the term "plant raw material". The "use" claim 11 has been canceled.

Therefore, following entry of this amendment, claims 1, 3-10 and 12-14 will remain pending herein for consideration.

2. Request for Record Confirmation of Priority Claim

Applicants are perplexed by the Examiner's statement that a certified copy of the foreign application, namely EP 04075628.0 filed 26 February 2004 ("the EP priority application"), has not been filed. In this regard, a review of the record via the USPTO PAIR system in fact reveals that a certified copy of the EP priority application is present therein. A copy of the transmittal document from the International Bureau obtained from the USPTO PAIR system is attached as Exhibit A.

Applicants further note that PCT Rule 17.1(a) states:

"Where the applicant has complied with Rule 17.1(a)..., the International Bureau shall, at the specific request of the designated Office, promptly...furnish a copy of the priority

document to that Office. *No such Office shall ask the applicant himself to furnish it with a copy.*" (emphasis added)

Therefore, since the certified copy of the EP priority application is already in the Office's records and since it is improper to again ask for the applicants to supply a certified copy of the same, it is submitted that the applicants claim for priority has in fact been perfected. Confirmation on the record of such facts is therefore solicited.

3. Response to 35 USC §101 Rejection

The cancellation of claim 11 renders moot the rejection advanced under 35 USC §101.

4. Response to 35 USC §112 Rejection

The amendment to claim 3 so as to remove therefrom the embedded preferred ranges (which preferred ranges now appear separately as new claims 13 and 14) renders moot the rejection advanced under 35 USC §112, second paragraph.

5. Response to 35 USC §103 Rejection

Prior claims 1-12 attracted a rejection under 35 USC §103(a) as allegedly being "obvious", and hence unpatentable, over Zyzak et al. in view of JP 80035105. Applicants respectfully disagree with the Examiner's conclusion in this regard.

Applicants note that Zyzak et al describe mechanisms for the formation of acrylamide in a model heated food. Zyzak et al thus disclose that asparagine and carbonyl containing compounds react to form acrylamide under typical cooking conditions. To confirm this mechanism Zyzak et al treated a slurry of mashed potato product with asparaginase solution and micro waved the thus treated product until dry and brown. In the asparaginase-treated potato product, asparagine was reduced by 88% and acrylamide formation was reduced by 99% (see page 4783 2nd column, par.

"Preparation of microwaved potato products" and page 4787 1st column, par.
"Verification of asparaginase as the source of acrylamide in food").

JP 80035108 merely describes that microorganism belonging to the genus *Aspergillus*, *Penicillium* or *Nectoria* can produce L-asparaginase enzyme.

The presently claimed invention is embodied in a process to reduce acrylamide in food or feed in which an enzyme capable of modifying the side chains of asparagine or glutamine is added to the surface of an intermediate food or feed product, after which the product is heated at temperatures of 100°C or higher.

The applicants have surprisingly found that it is not in fact necessary to treat the whole product intermediate prior to the heating step to considerably reduce acrylamide forming as taught by Zyzak et al. Rather, the applicants have surprisingly found that it is sufficient to treat the surface of the food intermediate with e.g. asparaginase prior to the heating step and to merely reduce the amount of asparagine or glutamine on the surface of the food or feed product to reduce considerably the amount of acrylamide formed.

The method of the presently claimed invention has the further advantage, if compared with what taught by Zyzak et al, that the nutritional value of the food or feed product remains unaltered because only asparagine or glutamine present on the surface of the food or feed intermediate is transformed into aspartic or glutamic acid. According to the method of the presently claimed invention a reduction of 30% of asparagine or glutamine in the intact food or feed product treated with enzyme can already be highly significant in leading to an almost complete acrylamide reduction in the final food or feed product.

Applicants therefore are of the firm opinion that the present invention is manifestly not obvious in view of Zyzak et al. Simply stated, there is no suggestion in Zyzak et al that by merely treating the surface of the food or feed product with enzyme

capable of modifying asparagine or glutamine, acrylamide formation in the food or feed product after the heating step can be reduced. Indeed, Zyzak et al teaches away from such a novel and unobvious solution to the problem of acrylamide formation in food or feed products.

The method of the presently claimed invention is also not obvious when consideration is given to JP 80035108 which merely discloses that some microorganisms may produce asparaginase. JP 80035108 thus does not relate at all to the use of such enzyme in food or feed, let alone provide any suggestions to the ordinarily skilled person about solutions to the problem of acrylamide formation in food or feed products.

Therefore, even if JP 80035108 is combined with Zyzak et al, the presently claimed invention would not be the result. That is, even if the teachings of the applied Zyzak et al and JP 80035108 references were to be combined, not all the limitations of the presently claimed method would be provided as neither reference discloses treating the surface of the intermediate food or feed product in order to obtain reduced acrylamide formation.

Withdrawal of the rejection advanced under 35 USC §103(a) is therefore in order.

Every effort has been made to advance prosecution of this application to allowance. Therefore, in view of the amendments and remarks above, applicant suggests that all claims are in condition for allowance and Official Notice of the same is solicited.

Should any small matters remain outstanding, the Examiner is encouraged to telephone the Applicants' undersigned attorney so that the same may be resolved without the need for an additional written action and reply.

6. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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